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Cooperative
**ECONOMIC INSECT
REPORT**

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ECONOMIC INSECT SURVEY AND DETECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearinghouse and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ARMYWORM moths in light traps in several States. (pp. 321, 330). CORN LEAF APHID heavy on grain sorghum in some areas of Texas and heavy on sorghum in Arizona. (p. 321).

PALE WESTERN CUTWORM damaged wheat in Colorado, South Dakota, and Wyoming. SOUTHERN CORN ROOTWORM damaged corn in a limited area of Alabama. (p. 322).

ALFALFA WEEVIL larvae damaged alfalfa in many States. Increasing in central and Eastern Shore counties of Maryland. (p. 323). PEA APHID heavy in Kansas, Arkansas, and Missouri. (p. 324).

NANTUCKET PINE TIP MOTH and DEODAR WEEVIL damaged seedling trees in Texas. (pp. 327-328).

Detection

A CLICK BEETLE reported from Wisconsin for the first time. (p. 323).

For new county records see page 330.

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WEATHER OF THE WEEK ENDING MAY 13

HIGHLIGHTS: The West cooled and the East warmed during the week. Vicious tornadoes and violent thunderstorms occurred over several Central States late in the week and over the weekend.

PRECIPITATION: Fair weather prevailed over most of the Nation early in the week. A few thunderstorms dotted the northern half of the Country in response to weak frontal systems. Snow flurries occurred in the vicinity of the Great Lakes with some sleet in upper Michigan. By midweek, stormy weather hit the Northwest with brisk winds and scattered rains. The Southwest remained dry. The strong winds kicked up clouds of dust and sand. The wind at Palm Springs, California, gusted to 58 m.p.h. Wednesday afternoon. The weekend brought several inches of snow to the northern Rocky Mountains and much severe weather to mid-America. Violent thunderstorms with large hail, high winds, and torrential rains hit several States from the central Great Plains to northern Mississippi. Flash flooding occurred in parts of Kansas and Missouri. The storms became more violent on Sunday and Monday. Large hail fell in many localities. Many of the storms produced hail up to 1 inch in diameter and in some areas were much larger approaching or exceeding the size of grapefruit. Some of the larger hailstones fell in Kansas, Iowa, and Texas. Tornadoes occurred in several States. One of the worst hit Lubbock, Texas, late Monday night killing dozens of persons, injuring thousands, and causing millions of dollars property damage.

TEMPERATURE: High pressure with pleasant sunny weather lay over a wide area behind a front that, early in the week, stretched from the Great Lakes to the middle Mississippi River Valley. High temperatures occurred in the desert Southwest, reaching 98° at Thermal, California, and Phoenix, Arizona, Monday afternoon May 4. Northerly winds cooled New England and the Northeast early in the week while southerly breezes behind the cold HIGH warmed the interior States. Mobridge, South Dakota, registered 89° Thursday afternoon. As the HIGH moved eastward the temperatures increased over the Eastern States reaching the 80's in New York and southern New England by the weekend. The west was mostly warmer than normal early in the week but cooled in the latter half. Weekly temperatures averaged slightly cooler than normal in the Far West and from southern Texas to the middle Atlantic coast. Much of the central Great Plains averaged 3° to 9° warmer than normal. (Summary supplied by Environmental Data Service, ESSA.)

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMYWORM (Pseudaletia unipuncta) - DELAWARE - Moths very numerous in blacklight trap collections in Kent County. (Burbutis, Kelsey). MICHIGAN - Collected 12 moths in Livingston County light trap April 26 and 27. (Newman). WISCONSIN - Moths appearing around lights in Dane County. (Wis. Ins. Sur., May 1). IOWA - Moths appeared in central areas May 2. Caught 18 adults April 25 in light trap at Dubuque, Dubuque County. (Iowa Ins. Sur.). KANSAS - Moths abundant in lawns and other grassy areas in Riley County. (Simpson).

ARMY CUTWORM (Chorizagrotis auxiliaris) - NEVADA - Larvae ranged light (1-2) to heavy (8-12) per crown in alfalfa hay and seed fields at Oroveda, Humboldt County. Larvae 0.5 to 1.25 inches in length. (Day, Lundahl). UTAH - Larvae numerous in home garden at Salt Lake City, Salt Lake County. (Knowlton, May 6). WYOMING - Light, ranged 0-3 per linear foot of wheat in Platte, Goshen, and Laramie Counties. (Parshall). NEBRASKA - Averaged 6 in 10 square feet in Frontier County forage legumes. Apparently peak damage past. (Manglitz).

ASTER LEAFHOPPER (Macrostelus fascifrons) - WISCONSIN - Ranged 6 per 100 sweeps in Dane and La Crosse Counties to 1 per 100 sweeps in Lafayette and Waushara Counties. Males and females present week ending May 1. Increased, counts of 15 per 100 sweeps in alfalfa and oats, in western Dane County. (Wis. Ins. Sur.).

BEET LEAFHOPPER (Circulifer tenellus) - IDAHO - Adult survey indicates populations below 1969. Host plants less widespread and in poor condition compared with 1969. (PPD).

CORN EARWORM (Heliothis zea) - TEXAS - Light on young grain sorghum in Williamson County. (Green, Wakefield).

CORN LEAF APHID (Rhopalosiphum maidis) - TEXAS - Numerous in some south-central areas. Beneficial insects controlling aphids in most fields in Live Oak and Gonzales Counties week ending May 1. (Cole). Currently light to moderate on small grains in El Paso County. Heavy in grain sorghum in Williamson County. Light to heavy in several counties, including Victoria, De Witt, and Caldwell. (Green et al.). ARIZONA - Averaged 100 per linear foot of sorghum in Maricopa County. (Ariz. Coop. Sur.).

GREENBUG (Schizaphis graminum) - KANSAS - Ranged 1-10 per linear foot of wheat in Sedgwick, Elk, Greenwood, Bourbon, Labette, Montgomery, Neosho, Allen, Lyon, Chase, and Anderson and 1-20 per linear foot in Chautauqua, Crawford, and Cherokee Counties. None found in wheat in Sumner, Cowley, Thomas, Rawlins, Sherman, and Cheyenne Counties. (Guldner et al.). TEXAS - Populations still heavy in some panhandle counties; wheat outgrowing damage. Braconids parasitizing greenbugs in Swisher, Briscoe, and Deaf Smith Counties (Daniels); declined on grain sorghum and corn in Live Oak and Gonzales Counties week ending May 1. (Cole). Currently light to moderate on small grain in El Paso County. Heavy on young grain sorghum in Williamson County. Greenbugs noted in Gonzales, Caldwell, Bexar, Kinney, Pecos, and Reeves Counties. No significant damage noted. (Green et al.). ARIZONA - Averaged 40 per linear foot of sorghum on 3 to 8-inch plants in 6 fields in Goodyear, Litchfield, and Maryvale areas of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

POTATO LEAFHOPPER (Empoasca fabae) - VIRGINIA - First adult of season in Montgomery County on birdsfoot trefoil April 30. (Pienkowski).

POTATO PSYLLID (Paratrioza cockerelli) - ARIZONA - This species and Myzus persicae (green peach aphid) required treatments in some potato fields in Maricopa County. (Ariz. Coop. Sur.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Increased, averaged 1 per 5 sweeps, in some alfalfa at Spring Green, Sauk County. (Wis. Ins. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NORTH DAKOTA - Winter mortality survey in southeast counties indicates higher than normal mortality for 1970. Ranged 0-90 (averaged 31) percent in Cass, Dickey, Ransom, Richland, and Sargent Counties. Increased 17 percent from 14 percent mortality in 1969. None of fields surveyed worked up. (Brandvik). WISCONSIN - Pupation started in sandy areas of State. (Wis. Ins. Sur.). ILLINOIS - Pupation 50 percent in Gallatin County. Started in northern area. First-generation borers not expected to cause much damage. (Sur. Bull.). MARYLAND - Pupation increasing. Ranged 10-25 percent on Eastern Shore and 1-12 percent in counties west of Chesapeake Bay. (U. Md., Ent. Dept.).

CHINCH BUG (Blissus leucopterus) - TEXAS - Heavy near Giddings, Lee County, on grain sorghum and corn. Some damage in Live Oak County week ending May 1. (Spivey, Cole). Currently damaging grain sorghum in several south-central counties. Problem magnified due to dry weather. (Cole).

SOUTHERN CORN ROOTWORM (Diabrotica undecimpunctata howardi) - TEXAS - Light in grain sorghum in Williamson and Limestone Counties. (Green et al.). ALABAMA - Destroyed 25-30 percent of young corn plants in 150-acre planting in Escambia County. (Knowles).

SEED-CORN BEETLE (Agonoderus lecontei) - MICHIGAN - Hundreds collected at Lenawee County blacklight on nights of April 26 and 27. (Newman).

SEED-CORN MAGGOT (Hylemya platura) - NEW JERSEY - Collected 330 on 4 sticky-board traps at Cedarville April 29 to May 6. (Ins.-Dis. Newsltr.).

EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) - ALABAMA - Damaging stalks of sugarcane in Escambia County. (Knowles, Barnett).

SMALL GRAINS

PALE WESTERN CUTWORM (Agrotis orthogonia) - SOUTH DAKOTA - Economic, larvae ranged 1-3 per row foot of winter wheat near Carter, Tripp County. Controls applied to 500 acres of winter wheat near Presho, Lyman County. (Jones, Jensen). WYOMING - Larvae ranged 0-8 (averaged 0.35) per linear foot in 24 wheatfields in Goshen, Platte, and Laramie Counties. Some spotty damage beginning to show in few fields. Larvae averaged 1.4 per linear foot in heaviest infested field. (Parshall). COLORADO - Scattered economic infestations (3-5 per linear foot) in wheat in northeastern areas. Controls applied to some fields. (Johnson).

A WIREWORM (Limonius infuscatus) - IDAHO - Ranged up to 12 per square foot in bluegrass seed fields and wheatfields at Post Falls and Worley, Kootenai County, and grassy field margins and wheatfields at Plummer, Benewah County. (Portman).

AN ANTHOMYIID FLY (Hylemya cerealis) - COLORADO - Observed on wheat throughout northeastern areas. Some controls applied. (Reinschmidt et al.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - WISCONSIN - Alates appearing in western part of State, none found in southeastern counties. (Wis. Ins. Sur.).

BROWN WHEAT MITE (Petrobia latens) - NEVADA - Medium on experimental plots of barley and wheat at Sparks, Washoe County. (Cords, Maxfield). WYOMING - Ranged 0-60 per linear foot of wheat in Goshen and Laramie Counties. (Parshall).

TURF, PASTURES, RANGELAND

WESTERN TENT CATERPILLAR (Malacosoma californicum ssp.) - NEVADA - Tents ranged 0-10 (average 4-5) per plant of bitterbrush (Purshia tridentata) at Peavine Mountain, Washoe County. (Lauderdale).

A CLICK BEETLE (Oedostethus femoralis) - WISCONSIN - Collected on July 28, 1969, from Japanese beetle traps at Mitchell Air Field in Milwaukee. Determined by V.H. Owens. This is a new State record. (Wis. Ins. Sur.).

A GROUND PEARL (Margarodes sp.) - TEXAS - Heavy on Tifgreen lawns at Odessa, Ector County. (Neeb).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - MISSOURI - Heavy damage in central, east-central, southeast, and south-central areas. Many untreated fields completely defoliated. Counts in these 4 areas ranged 15-60 larvae and 1-4 adults per sweep. Pupation underway in east-central, southeast, and south-central areas. Heavy populations of second instars throughout northeast area. Overwintered adult mating and oviposition observed throughout area. Adults and larvae collected in Bates, Cass, Jackson, St. Clair, and Vernon Counties. These are new county records. Chemical controls applied throughout southern half of State. (Hanning et al.). ILLINOIS - Larvae extremely abundant in alfalfa in southern areas. Pupation underway. Severe damage occurred to some fields in southern area. Controls applied. In northern areas moderate damage expected. May be problem of second cutting in north. (Sur. Bull.). INDIANA - Larval counts averaged 6 per 100 stems in northern district; feeding signs averaged 57 percent in southeast, 71 in south-central, and 82 in the southwest districts. (Meyer). WISCONSIN - Primarily first instar and few second instars appearing. Larval damage difficult to assess due to feeding by larvae of Hypera punctata (clover leaf weevil) with populations higher than alfalfa weevil. Feeding by combined species evident in newly seeded fields. (Wis. Ins. Sur.). MICHIGAN - Adults in St. Clair County; found in protected areas. Adults and feeding signs found in Ingham and Clinton Counties, not yet damaging. Adults scarce in fields examined in Bay, Saginaw, and Tuscola Counties. (Ruppel). NEW YORK - Adults ranged 1 per 2 sweeps to 1 per sweep on alfalfa in Genesee County April 28. Adults found in Livingston County April 17. (N.Y. Wkly. Rpt.). NEW JERSEY - Adults and larvae in southern counties practically non-existent. (Ins.-Dis. Newsltr.). DELAWARE - All instars present on alfalfa in Sussex County, feeding injury very light in most fields. (Burbutis, Kelsey).

MARYLAND - Alfalfa weevil adult and larval activity increasing in central and Eastern Shore counties. Adults 3-12 per 10 sweeps. Larvae ranged 0-30 per 10 sweeps statewide. Larvae heaviest in 40 acres of alfalfa near Beltsville, Prince Georges County. (U. Md., Ent. Dept.). VIRGINIA - Light to heavy in southern Piedmont; most fields moderate. Damage generally higher than predicted in area. Damage by county as follows: Franklin light to heavy, most fields moderate; Campbell light; Nottoway moderate to heavy, most fields moderate. (Allen). Larvae averaged 20 per sweep in Hanover County. (Innes). TENNESSEE - Heavy damage in alfalfa in Giles County. (Edwards et al.). SOUTH CAROLINA - Still in all alfalfa fields; adults and second-generation larvae numerous in Anderson and Newberry Counties. (Thomas). ARKANSAS - No economic infestations in southwest areas. Adults ranged 15-30 in 100 sweeps in Lafayette County. (Boyer, Barnes). TEXAS - Specimens collected at Stephenville, Erath County, March 26; at Sequin, Guadalupe County, by H.S. New April 1; at Luling, Caldwell County, by C.L. Cole April 8; at Meridian, Bosque County, by L.R. Green March 26; at Hamilton, Hamilton County, March 26; and at Carrizo Springs, Dimmit County, by O. Reinhart April 6; and at Bastrop, Bastrop County, by E. Migura April 7. Collections on alfalfa and clover. Determined by D.M. Anderson and R.E. Warner. These are new county records. (PPD). COLORADO - Adult feeding very light, no evidence of egg laying in Logan, Morgan, Weld, and Larimer Counties. (Johnson). WYOMING - Averaged 0-4 per 10 sweeps of alfalfa in Platte and Goshen Counties. (Parshall). UTAH - Adults active at Brigham, Box Elder County (Knowlton, May 5); limited in northern areas due to cold weather. (Davis, May 6).

CLOVER LEAF WEEVIL (Hypera punctata) - WISCONSIN - Ranged first to third instar and generally outnumbered alfalfa weevil larvae by 3 to 1. (Wis. Ins. Sur., May 1). KANSAS - Counts of 20 per 10 sweeps of alfalfa in Cherokee County. (Guldner), 20 per 25 sweeps in Graham, Sheridan, and Rawlins Counties. (Iselin).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Averaged 800 per 100 sweeps of alfalfa in Yuma County. (Ariz. Coop. Sur.). KANSAS - Average per 25 sweeps of alfalfa by county: 0-10 in Sherman and Cheyenne, 10-50 in Thomas, Rawlins, Cherokee; 50-100 in Neosho, Allen, Chautauqua, Anderson; 100-200 in Montgomery, Wabaunsee; 200-300 in Labette, Bourbon, Crawford, Greenwood; 300-400 in Chase, Lyon; 500-600 in Elk; 600-700 in Sedgwick; 800-900 in Cowley and 1,000-1,500 in Sumner. Predators and parasites in significant numbers in all infested fields. (Guldner et al.). ARKANSAS - Heavy, ranged 800-1,000 in 100 sweeps, in alfalfa in southwest areas. (Boyer, Barnes). MISSOURI - Heavy, up to 500 per sweep still found throughout southwest area. Predators still low but diseased aphids observed in all fields. (Munson). WISCONSIN - Remains low, parasitism noticeable; as high as 30 percent in southeastern counties. Adults of Praon pequodorum (a braconid) emerging. (Wis. Ins. Sur.). INDIANA - Averaged 31 (ranged 0-105) per 100 sweeps in southern district. (Meyer). VIRGINIA - Averaged 30-50 per 100 sweeps of alfalfa and red clover in Franklin, Mecklenburg, Campbell, and Nottoway Counties. (Allen).

NOCTUID MOTHS - MICHIGAN - Agrotis ipsilon (black cutworm) increasing, 7 collected at Livingston County light trap week ending May 4. (Newman). WISCONSIN - Colias eurytheme (alfalfa caterpillar) larvae common in many alfalfa fields and some parasitism evident. (Wis. Ins. Sur., May 1). ARIZONA - Spodoptera exigua (beet armyworm) larvae averaged 8 per 100 sweeps of alfalfa at Yuma Valley, Yuma County. (Ariz. Coop. Sur.).

MEADOW SPITTLEBUG (Philaenus spumarius) - WISCONSIN - Eggs hatching in sandy areas of State and nymphs on alfalfa week ending May 1. Spittle masses currently 1 in 10 stems of alfalfa in sandy areas. (Wis. Ins. Sur.). INDIANA - Spittle masses averaged 11 per 100 stems of alfalfa in southeast district, 22 per 100 in south-central, and 15 per 100 in southwest. (Meyer). MARYLAND - Heavy (6-10 spittle masses per square foot) in 4 large stands (totaling 250 acres) of red clover in Carroll, Howard, and Frederick Counties. (U. Md., Ent. Dept.). VIRGINIA - Very light on red clover in Franklin, Campbell, Halifax, Mecklenburg, Botetourt, Roanoke, and Montgomery Counties. (Allen). Appeared in Fluvanna County on red clover and alfalfa. (Watts).

LYGUS BUGS (Lygus spp.) - INDIANA - L. lineolaris (tarnished plant bug) adults averaged 21 per 100 sweeps of alfalfa in southeast district, 25 in south-central, and 36 in southwest. (Meyer). VIRGINIA - L. lineolaris 14-24 per 100 sweeps of alfalfa in Franklin, Campbell, and Nottoway Counties. (Allen). ARIZONA - Lygus sp. averaged 350 per 100 sweeps of alfalfa at Gila Valley and Yuma Mesa, Yuma County. (Ariz. Coop. Sur.).

PEANUTS

A BURROWING STINK BUG (Pangaeus bilineatus) - TEXAS - Light and feeding on cotyledons of young peanuts in Frio County. (Cole).

COTTON

BOLL WEEVIL (Anthonomus grandis) - TEXAS - Overwintered weevils trapped in Wharton, Jackson, Matagorda, Calhoun, Stonewall, and Haskell Counties. Traps inside diapause control areas indicate much lower weevil populations. (Cole, Boring, May 1). In McLennan and Falls Counties, 12 flight screens installed and 1 weevil collected April 10. In 60 fields inspected 1 weevil found. (Cowan et al.). Decline in weevil catches in south-central areas; may be due to weather. Collected 1 weevil in diapause control area, 23 from area southeast of control zone between treated and untreated fields. Total of 18 weevils caught in Matagorda County and 10 in northern Wharton County. (Green). ALABAMA - Surveys negative in

Monroe, Shelby, Talladega, Morgan, and Colbert Counties. (McQueen). SOUTH CAROLINA - Boll weevil survival lower than anytime since 1940. (Nettles).

ALFALFA WEEVIL (Hypera postica) - TEXAS - Adults heavy in young cotton in Navarro County, apparently attacking stems at ground level. (Turney).

DARKLING BEETLES (Blapstinus spp.) - ARIZONA - Controls required in 1 field of young cotton at Marana, Pima County. (Ariz. Coop. Sur.).

BOLLWORMS (Heliothis spp.) - TEXAS - H. zea and H. virescens light in cotton in lower Rio Grande Valley. (Deer, May 1).

COTTON FLEAHOPPER (Pseudatomoscelis seriatus) - TEXAS - Increasing in some fields in lower Rio Grande Valley week ending May 1. (Deer). Light in 3 of 22 treated fields and in 9 of 38 untreated fields in McLennan and Falls Counties. (Cowan et al.).

A FLEAHOPPER (Spanogonicus albofasciatus) - ARIZONA - Averaged 1 per 5 cotton seedlings on west side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

SUGARBEETS

SUGAR-BEET ROOT MAGGOT (Tetanops myopaeformis) - IDAHO - Larvae pupating at Rupert, Minidoka County, and adult emergence expected soon. (Peay). COLORADO - Adults emerging in Windsor area, Weld County. (Jenkins).

POTATOES, TOMATOES, PEPPERS

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) - DELAWARE - Adults on young potatoes in Kent County. (Boys). MARYLAND - Adults active in recently plowed, unplanted fields in Dorchester, Wicomico, Somerset, and Worcester Counties. Expect problems on transplanted tomatoes if controls not applied during transplanting. (U. Md., Ent. Dept.). INDIANA - Adult counts of 1-2 on potato plants in Gibson County. (Meyer). WASHINGTON - Overwintering adults emerging from shelter at Yakima, Yakima County. (Landis).

TOBACCO FLEA BEETLE (Epitrix hirtipennis) - MARYLAND - First adults of season in newly planted tomatoes in Caroline County, no damage. (U. Md., Ent. Dept.).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - This species and Paratrioza cockerelli (potato psyllid) required treatments in some potato fields in Maricopa County. (Ariz. Coop. Sur.).

COLE CROPS

IMPORTED CABBAGEWORM (Pieris rapae) - MICHIGAN - Early spring brood appeared in limited numbers May 3 in Livingston County. Eggs deposited on wild and early planted crucifers. (Newman).

GENERAL VEGETABLES

CABBAGE LOOPER (Trichoplusia ni) - TEXAS - Heavy and widespread on cabbage and lettuce in Limestone County. (Brown, May 1).

ONION MAGGOT (Hylemya antiqua) - NEW JERSEY - Collected 30 on 4 sticky-board traps at Cedarville April 29 to May 6. (Ins.-Dis. Newsltr.).

A SNAIL (Otala lactea) - ARIZONA - Collected 4 specimens at residence April 22. Two adjoining residences infested. First record of establishment in Maricopa County. Determined by A. Mead. (Ariz. Coop. Sur.).

DECIDUOUS FRUITS AND NUTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TENNESSEE - Defoliation beginning on shade trees in central area. Heavy damage expected in some areas. (Gordon). WISCONSIN - Webs noticeable. (Wis. Ins. Sur., May 1). NEW JERSEY - Active for first time in 2 years on Morris County wild cherry. (Ins.-Dis. Newsltr.). RHODE ISLAND - Hatched in Providence County. (Relli).

GEOMETRID MOTHS - TENNESSEE - Paleacrita vernata (spring cankerworm) damage heavy on apple trees in Giles County. (Edwards et al.). MICHIGAN - P. vernata and Alsophila pometaria (fall cankerworm) adults showed moderate increase in Livingston County blacklight trap. Counts below numbers of past 2 years. (Newman, May 4).

PEACH TWIG BORER (Anarsia lineatella) - WASHINGTON - First shoot strikes on peach April 27 at Sawyer, Yakima County. (Johnson).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - WASHINGTON - First adults trapped April 28 at Sawyer, Yakima County. (Johnson). COLORADO - Adults increasing in traps in Palisade and Vineland districts of Mesa County. Ranged 1-31 per trap; heaviest at Vineland. (Sisson, Anderson). NEW JERSEY - Trapped 7 moths at Glassboro, Gloucester County, April 29 to May 6. (Ins.-Dis. Newsltr.).

CODLING MOTH (Laspeyresia pomonella) - WASHINGTON - First adults in sex lure traps May 2 at Prosser, Benton County, and in upper Yakima Valley, Yakima County. (Johnson, Olmstead).

PEAR PSYLLA (Psylla pyricola) - MICHIGAN - Hatching from Berrien County to Fennville, Allegan County. (Janes, May 4). NEW YORK - Hatched in Ulster, Dutchess, and Orange Counties week ending May 4. Generally lighter than in 1969. (N.Y. Wkly. Rpt.). CONNECTICUT - Adults at East Lyme, New London County. Hatched at Storrs, Tolland County. (Savos, May 6).

CICADAS (Magicicada spp.) - MARYLAND - Nymphal tunnels evident throughout State west of Chesapeake Bay. Heaviest counts of emergence holes, 1-10 per square foot, in wooded areas near Greenbelt, Prince Georges County. (U. Md., Ent. Dept.).

TARNISHED PLANT BUG (Lygus lineolaris) - NEW YORK - Feeding on pears and apples in Ulster, Dutchess, and Orange Counties April 26-27. (N.Y. Wkly. Rpt.). MICHIGAN - First adults in orchards week ending May 4. (Janes).

EUROPEAN RED MITE (Panonychus ulmi) - MICHIGAN - Immatures numerous on apple foliage from Benton Harbor through Kalamazoo to Pontiac. (Janes, May 4). NEW JERSEY - First hatch of year May 2-3 in south counties. Coincides with full pink stage for Red Delicious. (Ins.-Dis. Newsltr.). CONNECTICUT - Overwintered egg hatch at New Haven, New Haven County; Woodstock, Windham County; and Storrs, Tolland County. (Savos, May 6).

A SPIDER MITE (Tetranychus mcdanieli) - WASHINGTON - Early instars on pear May 6 at Parker Heights, Yakima County. (Johnson).

PECAN NUT CASEBEARER (Acrobasis caryae) - TEXAS - Moth emergence in De Witt County week ending May 1. Larvae tunneling in developing shoots in Wilbarger, Martin, and Upton Counties. (Boring et al.). Moth emergence from pupae collected in bands reached 10 percent in Maverick County May 1-2, peaked May 4. Moth emergence 10 percent in Brazos County May 6; anticipated spray date May 16. Moth emergence 15 percent by May 5 in Milam County; spray date May 15-16. (Harris et al.).

CITRUS

Citrus Insect Situation in Florida - End of April - CITRUS RUST MITE (Phyllo-coptruta oleivora) infested 71 (norm 63) percent of groves; economic in 57 (norm 40) percent. Advanced farther into high range and is above average. Further increase expected. Highest districts west, south, central, and east. CITRUS RED MITE (Panonychus citri) in 40 (norm 49) percent of groves; economic in 21 (norm 19) percent. Increase but still below normal and in low range. Increase expected to continue. Highest districts north and south. TEXAS CITRUS MITE (Eutetranychus banksi) in 24 (norm 49) percent of groves; economic in 11 (norm 24) percent. At lowest April level in 11 years. Will remain in low range in all districts despite expected increase. Highest district south. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) in 12 (norm 9) percent of groves; economic in 2 (norm 1) percent. Near normal. Will increase through May and then decrease rapidly. Scattered groves that did not receive a miticide postbloom may develop heavy infestations that can cause leaf drop. GLOVER SCALE (Lepidosaphes gloverii) in 79 (norm 82) percent of groves; economic in 10 (norm 19) percent. Below normal and moderate; increase expected. Highest districts west, north, and east. PURPLE SCALE (L. beckii) in 69 (norm 82) percent of groves; economic in 5 (norm 11) percent. Below normal and at moderate level; little change expected. Highest districts west and north. YELLOW SCALE (Aonidiella citrina) in 61 (norm 64) percent of groves; economic in 4 (norm 9) percent. CHAFF SCALE (Parlatoria pergandii) in 46 (norm 64) percent of groves; economic in 2 (norm 11) percent. BLACK SCALE (Saissetia oleae) in 5 (norm 26) percent of groves; none economic (norm 10 percent). Above 3 scales below normal abundance and in low range; all expected to increase gradually. An ARMORED SCALE (Unaspis citri) in 26 percent of groves; moderate or heavy in 7 percent. Population highest on record for April. Increase expected. WHITEFLIES in 72 (norm 63) percent of groves; economic in 15 (norm 7) percent. Adult, egg, and larval forms much above normal abundance in April. Larvae expected to increase into high range. MEALYBUGS expected to continue to be low until June. (W.A. Simanton, Citrus Expt. Sta., Lake Alfred)).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Treated all citrus areas at Yuma, Yuma County. Many young commercial groves treated in Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

SMALL FRUITS

A GROUND PEARL (Margarodes meridionalis) - ARIZONA - Infested soil in grape vineyard at Chandler Heights, Maricopa County. (Ariz. Coop. Sur.).

ORNAMENTALS

CITRUS RED MITE (Panonychus citri) - ARIZONA - Infested camellia at local nursery in Maricopa County. (Ariz. Coop. Sur.).

SPIDER MITES - COLORADO - Very active on junipers at Greeley, Weld County. Controls recommended. (Urano).

FOREST AND SHADE TREES

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - TEXAS - Numbers throughout early 1970 remained significantly below previous years. Total of 136 multiple tree spots detected on private lands since January 1. Of these, about 36 have been southern pine beetle. Controlled spot size averaged 36 trees in 1970, well below 72-tree average of 1968 and 1969. (Mason, For. Pest Activity Rpt., Jan. - Mar.).

DEODAR WEEVIL (Pissodes nemorensis) - TEXAS - Damage heavy to seedlings and saplings on roadsides and cleared areas. Killed or damaged 4,000 young trees in eastern Angelina County. (Mason, For. Pest Activity Rpt., Jan. - Mar.).

PINE COLASPIS (Colaspis pini) - TEXAS - Damaging ornamental pines in Morris County. (Coster, May 1).

OLETHREUTID MOTHS - TEXAS - Rhyacionia frustrana (Nantucket pine tip moth) damage very heavy to pine seedlings in Chambers, Harris, and Red River Counties. Many areas throughout pine range heavily infested past 3-4 years. (Mason, For. Pest Activity Rpt., Jan. - Mar.). RHODE ISLAND - R. buoliana (European pine shoot moth) larvae on Scotch pine in Kent County. (Relli, May 1). MICHIGAN - Taniva albolineana (spruce needle miner) damage severe in acre block of Colorado spruce in Macomb County April 29. (Hanna).

TEXAS LEAF-CUTTING ANT (Atta texana) - TEXAS - Damage increased primarily due to new pine plantings and absence of other green foliage. Heavily damaged 5,500 seedlings in Bastrop, Wood, Gonzales, Lee, Colorado, Caldwell, Fayette, Polk, and Rusk Counties. Bait control effective. (Mason, For. Pest Activity Rpt., Jan. - Mar.).

EUROPEAN PINE SAWFLY (Neodiprion sertifer) - INDIANA - Larvae heavy in Ripley County but not unusually abundant in other areas. (Schuder).

PINE SPITTLEBUG (Aphrophora parallela) - MICHIGAN - Few first instars May 1 on Scotch pine in Ingham County. No spittle masses. Normal hatch expected in 14 days with spittle masses most evident in early June. (Hanna).

ELM LEAF BEETLE (Pyrrhalta luteola) - TEXAS - Overwintering adults damaged elm leaves in Upton, Glasscock, and several Rolling Plains counties. (Neeb, Boring, May 1). NEVADA - Heavy adult emergence from hibernation, feeding on elm foliage in southern Washoe County. (Nev. Coop. Rpt.).

SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) - KANSAS - Adults feeding on American elm in Shawnee County. (Simpson). IDAHO - Adults emerging and migrating at Caldwell, Canyon County. (Homan).

NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) - NORTH DAKOTA - Adults appeared at Kindred, Cass County. Collected 75 in window trap in 24 hours. (Brandvik).

SPRING CANKERWORM (Paleacrita vernata) - WISCONSIN - First instars feeding on American elm leaves in western Dane County. (Wis. Ins. Sur., May 1).

MAN AND ANIMALS

HORN FLY (Haematobia irritans) - TEXAS - Building up on cattle throughout Rolling Plains. Light in Martin, Midland, and Glasscock Counties. Heaviest, 600 per head, in Glasscock County. (Boring, Neeb, May 1). Light to heavy on cattle in Victoria and Cottle Counties. Moderate to heavy in Shackelford County. (McCombs, Boring). MARYLAND - First adults of season 3-15 per head on 60 steers at Brookville, Montgomery County. (U. Md., Ent. Dept.).

FACE FLY (Musca autumnalis) - NEW JERSEY - On dairy cows near Neshanic, Somerset County. (Ins.-Dis. Newsltr.). MARYLAND - First adults of season in Frederick, Carroll, Baltimore, and Howard Counties. Adults 5-25 per head on dairy cattle and beef steers. (U. Md., Ent. Dept.). IDAHO - First male of season at Moscow, Latah County, May 2. (Portman).

MOSQUITOES - TEXAS - Aedes sollicitans light at Sabine and Pleasure Island, Jefferson County, during April. Culex salinarius heavy in south and central areas of county. C. pipiens quinquefasciatus larvae becoming numerous in polluted water. Probably first flight of Psorophora confinnis males April 16. New Coquillettidia perturbans females collected early in April. (Jefferson County Mosq. Cont. Dist.).

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. May 3-9. Total of 46 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico April 26 to May 2: Sonora 43, Chihuahua 2, Nuevo Leon 1. Total of 13 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 14,638,000; Mexico 140,850,000. (Anim. Health Div.).

A BITING MIDGE (Culicoides variipennis) - INDIANA - Annoying man and cattle in Grant County. (Sanders).

HOUSEHOLDS AND STRUCTURES

A SUBTERRANEAN TERMITE (Reticulitermes tibialis) - NEVADA - Heavy; damage heavy to several houses at Reno, Washoe County, and Carson City, Ormsby County. (Nev. Coop. Rpt.).

BENEFICIAL INSECTS

LADY BEETLES - ARKANSAS - Coccinella novemnotata, most abundant lady beetle, 75-100 in 100 sweeps, in alfalfa in Lafayette County. (Boyer). Hippodamia convergens (convergent lady beetle) light, 15-20 in 100 sweeps, in Southwest area alfalfa. (Boyer, Barnes). TENNESSEE - H. convergens light to moderate in small grains in central area. (Gordon). INDIANA - Ceratomegilla maculata adults averaged 12 per 100 sweeps of alfalfa in southeast district, 13 in south-central, and 74 in southwest. (Meyer). WASHINGTON - Coccinella transversoguttata (transverse lady beetle) adults emerging from overwintering cache at bases of trees at Yakima, Yakima County. (Landis).

DAMSEL BUGS - INDIANA - Adults averaged 20 per 100 sweeps of alfalfa in southeast district, 5 in south-central, and 31 in southwest. (Meyer).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

CEREAL LEAF BEETLE (Oulema melanopus) - MICHIGAN - Adults and feeding scarce on wheat and grasses in Ingham and Clinton Counties. None in Bay and Tuscola Counties. (Ruppel). Eggs laid on wheat April 28 at Gull Lake, Kalamazoo County. (Janes).

CITRUS BLACKFLY (Aleurocanthus woglumi) - MEXICO - Biological Control - Infested 3,831 of 66,031 trees inspected in municipios Villagran, Hidalgo, and Padilla, Tamaulipas. Chemical Control - Infested 516 of 48,413 trees inspected in 7 municipios of Nuevo Leon. Infested 4 trees in Reynosa, Tamaulipas. Inspection in Sonora and Baja California negative. (PPD Mex. Reg., Mar.).

GRASSHOPPERS - IDAHO - Oedaleonotus enigma 3-27 (averaged 9) per square yard in Rosevear Gulch and Grindstone Butte area of Elmore County. (Evans). WYOMING - Two Psoloessa delicatula fifth instars and 1 Arphia conspersa adult in 100 square feet of rangeland sampled at Glendo study site, Platte County, May 5. Eritettix simplex tricarinatus fifth instars less than 1 per 100 square feet. No hatch of any overwintering eggs. (Pfadt).

A GRASS BUG (Labops hesperius) - UTAH - Counts of 25 per square foot on crested wheatgrass, damage moderate, in Diamond Fork of Spanish Fork Canyon, Utah County. (Thornley, Judd, May 8).

GYPSY MOTH (Porthetria dispar) - NEW YORK - Premature hatch on houses at Huntington and Wildwood, Suffolk County, week ending May 4. (N.Y. Wkly. Rpt.). RHODE ISLAND - Hatching at Burrillville, Providence County. (Stelle).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - ARKANSAS - Light in grass of motel parking lot at Conway, Faulkner County, for a new county record. Collected by R. Loftin May 5. Determined by V.H. Owens; confirmed by D.R. Smith. (PPD).

PINK BOLLWORM (Pectinophora gossypiella) - CALIFORNIA - Release of 4,135,150 sterile moths in Coachella Valley; total to date 19,236,750. Release of 981,500 sterile moths in Bakersfield area, Kern County; total to date 4,007,700. First squares appeared April 25 in Coachella Valley. Heavy native moth emergence in cages since April 10. ARIZONA - First releases of sterile moths this year at Redington, Pima County, May 1; total of 67,500. (PPD).

WHITE-FRINGED BEETLES (Graphognathus spp.) - ALABAMA - Larvae damaged young corn and seed corn in 20-acre field and large percentage of transplanted tomato plants in 4-acre field in Houston County. (Wilson).

HAWAII INSECT REPORT

General Vegetables - All stages of TEXAS CITRUS MITE (Eutetranychus banksi) heavy on upper leaf surfaces of backyard lima beans at Ewa, Oahu. (Funasaki). IMPORTED CABBAGEWORM (Pieris rapae) adults heavy in 0.5 acre of abandoned head cabbage planting at Pulehu, Maui; eggs light, larvae trace. Adults of a BRACONID (Apanteles glomeratus) numerous, average 6 per plant. Adults of ONION THRIPS (Thrips tabaci) light, 4-6 per plant, in 1.5 acre of bulb onions at Omapio, Maui. (Miyahira).

Fruit and Nuts - An ARMORED SCALE (Fiorinia fioriniae) light, 25 per leaf, on avocado at Pukalani and Makawao, Maui. Trace on macadamia trees at Pukalani. (Miyahira). Larvae of a NOCTUID MOTH (Phlegetonia delatrix) heavy, 2-3 per terminal, on mountain-apple (Eugenia malaccensis) tree at Kaneohe, Oahu. Moderate to heavy damage to young terminal leaves of Java-plum (E. cumini) in windward Oahu. (Funasaki, Kawamura).

Ornamentals - All stages of BANDED GREENHOUSE THRIPS (Hercinothrips femoralis) moderate to heavy on foliage and stems of spider lily at resort hotels at Waipouli and Lihue, Kauai. (Sugawa, Bianchi).

Beneficial Insects - Larvae of a PUNCTURE-VINE STEEM WEEVIL (Microlarinus lypriformis) in all 71 internodes of Tribulus cistoides and in 63 percent of 107 internodes of T. terrestris at Waikapu, Maui. (Miyahira).

Miscellaneous Pests - During April surveys for GIANT AFRICAN SNAIL (Achatina fulica), 369 snails, mostly juveniles, destroyed at Poipu; 6 at Wahiawa, Kauai. No live snails detected in areas accessible by surveillance trails, but 12 snails discovered in adjacent areas. Poison baits extended to include these areas. (Sugawa, Yoshioka).

DETECTION

New State Record - A CLICK BEETLE (Oedostethus femoralis) WISCONSIN - Milwaukee. (p. 323).

New County Records - ALFALFA WEEVIL (Hypera postica) MISSOURI - Bates, Cass, Jackson, St. Clair, Vernon; TEXAS - Bastrop, Bosque, Caldwell, Dimmit, Erath, Guadalupe, Hamilton (p. 323). IMPORTED FIRE ANT (Solenopsis saevissima richteri) ARKANSAS - Faulkner (p. 329).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 5/1-7, BL - Armyworm (Pseudaletia unipuncta) 7, beet armyworm (Spodoptera exigua) 35, black cutworm (Agrotis ipsilon) 12, granulate cutworm (Feltia subterranea) 22, salt-marsh caterpillar (Estigmene acrea) 1, variegated cutworm (Peridroma saucia) 4, yellow-striped armyworm (Prodenia ornithogalli) 2. MISSISSIPPI - Stoneville - 5/1-7, 2BL, 47°-88°F., precip. 0.93 - Armyworm 32, black cutworm 43, corn earworm (Heliothis zea) 14, fall armyworm (S. frugiperda) 1, granulate cutworm 3, salt-marsh caterpillar 43, variegated cutworm 4, yellow-striped armyworm 29. MISSOURI - Fair Grove - 4/30-5/6, BL - Armyworm 224, black cutworm 14, variegated cutworm 7. Kansas City - 4/23-5/6 - Armyworm 164, black cutworm 23, variegated cutworm 14. OHIO - Wooster, 5/1-7, BL - Armyworm 51, black cutworm 2, variegated cutworm 1. TEXAS - Waco - 4/30-5/7, BL - Armyworm 3, beet armyworm 3, black cutworm 3, cabbage looper (Trichoplusia ni) 1, corn earworm 1, variegated cutworm 15, yellow-striped armyworm 13.

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